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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TRAORE, FATOUMATA	
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### DETAILED ACTION

1. This action is in response of the original filing of March 17, 2004. Claims 1-32 are pending and have been considered below.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 16-22, 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Hind et al (US 6976163).

Claim 1: Hind et al discloses an apparatus for secure firmware updates comprising:

A storing unit that stores a program in accordance with which the image forming apparatus operates (the computer program instructions is stored in a computer – readable memory that directs a computer or other programmable data

processing apparatus to function in a particular manner) (column 6, lines 36-40);

An acquiring unit that acquires an update program from an external source (the computer program instruction is loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed

on the computer or other programmable apparatus to produce a computer implementation process) (column 6, lines 44-48);

And an updating unit that determines whether an electronic signature of the update program acquired by said acquiring unit is authentic and, if the electronic signature of the acquired update program is determined to be authentic (the authenticity of the update image is verified. Such verification is accomplished in various ways for example by including and checking a digital signature comprising a hash of the image encrypted by the private key of the update authority) (column 3, lines 18-30), updates the program stored in said storing unit using the acquired update program (the programmable memory is updated with the update image only if all the update application rules indicate that the update image is applicable to the device) (column 2, lines 53-60).

Claim 17: **Hind et al** discloses an apparatus for secure firmware updates comprising:

A storing unit that stores a program in accordance with which the image forming apparatus operates (the computer program instructions are stored in a computer-readable memory that directs a computer or other programmable data processing apparatus to function in a particular manner) (column 6, lines 36-40);

An acquiring unit that acquires an update program from an external source (the computer program instruction is loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed

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on the computer or other programmable apparatus to produce a computer implementation process) (column 6, lines 44-48);

And an updating unit that updates the program stored in said storing unit using the update program acquired by said acquiring unit, wherein after updating the program stored in said storing unit, said updating unit determines whether an electronic signature of the updated program is authentic and, if the electronic signature of the updated program is authentic (the authenticity of the update image is verified. Such verification is accomplished in various ways for example by including and checking a digital signature comprising a hash of the image encrypted by the private key of the update authority) (column 3, lines 18-30), said updating unit maintains the updated program (the programmable memory is updated with the update image only if all the update application rules indicate that the update image is applicable to the device) (column 2, lines 53-60).

Claims 2, 18: **Hind et al** discloses an apparatus for secure firmware updates as in claims 1 and 17 above, and further discloses that said updating unit determines whether the electronic signature of the update program acquired by said acquiring unit is authentic by comparing a message digest generated from the update program acquired by said acquiring unit and a message digest obtained by decrypting the electronic signature of the update program (the verification of signature is provided by computing the hash over the image, decrypting the

signature using the public key from the included certificate, and comparing the decrypt result with the computed hash value) (column 3, lines 33-36).

Claims 3, 19: **Hind et al** discloses an apparatus for secure firmware updates as in claims 1 and 17 above, and further discloses that said updating unit updates the program stored in said storing unit with the update program acquired by said acquiring unit, and updates an electronic signature of the program stored in said storing unit with the electronic signature of the update program (the update application rules defines how data from the update image is utilized to update the programmable memory and identifies installation information provided with the update image. The programmable memory would be updated utilizing the installation information by executing the install program to write the update data to the programmable memory) (column 3, lines 5-17).

Claims 4, 20: **Hind et al** discloses an apparatus for secure firmware updates as in claims 1 and 17 above, and further discloses that said acquiring unit is an update recording medium setting unit and the external source is an update recording medium to be set in the update recording medium setting unit, the update recording medium storing the update program and the electronic signature of the update program (any suitable computer readable medium may be utilized including hard disk, CD-ROMs, optical storage devices, or magnetic storage devices) (column 5, lines 50-53).

Claims 5, 21: **Hind et al** discloses an apparatus for secure firmware updates as in claims 1 and 17 above, and further discloses that said acquiring unit is a receiving unit that receives the update program and the electronic signature of the update program from the external source via a network (the computer program is loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer) (column 6, lines 44-48)

Claims 6, 22: **Hind et al** discloses an apparatus for secure firmware updates as in claims 1 and 17 above, and further discloses that said storing unit further comprises a recording medium setting unit and a recording medium set therein, the recording medium storing the program (these computer program instructions are also stored in a computer readable memory that can direct a computer and other programmable data processing apparatus to function in a particular manner) (column 6, lines 36-39).

Claims 16, 32: **Hind et al** discloses an apparatus for secure firmware updates as in claims 4 and 20 above, and further discloses that the update recording medium storing the update program and the electronic signature thereof (the update application rules defines how data from the update image is utilized to update the programmable memory and identifies installation information provided

with the update image. The programmable memory would be updated utilizing the installation information by executing the install program to write the update data to the programmable memory) (column 3, lines 5-17).

4. Claims 12-15, 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by **Mattison** (US 6615355).

Claim 12: **Mattison** discloses a method for protecting flash memory from any unauthorized reprogramming effort comprising:

Acquiring an update program and an electronic signature thereof (a flash memory upgrade program containing a new flash memory image for the flash memory would be loaded into main system memory) (column 3, lines 25-27);

Determining whether the acquired electronic signature of the update program is authentic (comparing the original hash value obtained from decrypting the digital signature with the independently generated hash value to find a match) (column 3, lines 51-54);

And updating, if the acquired electronic signature of the acquired update program is determined to be authentic, the program stored in the recording medium using the acquired update program (if the hash values match, indicating that flash memory upgrade program containing in main memory originated from the authorized creator and has not been modified, then the current program containing in the lash memory would enable reprogramming of the flash memory



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and return control of the processor to the flash memory upgrade program)  
(column 3, lines 55-61).

Claim 28: **Mattison** discloses a method for protecting flash memory from any unauthorized reprogramming effort comprising:

Acquiring an update program from an external source (a flash memory upgrade program containing a new flash memory image for the flash memory would be loaded into main system memory) (column 3, lines 25-27);

Updating the program stored in the recording medium using the acquired update program (the flash memory upgrade would then erase the flash memory and copy the new flash memory image into the flash memory) (column 3, lines 62-64);

Determining whether an electronic signature of the updated program is authentic (comparing the original hash value obtained from decrypting the digital signature with the independently generated hash value to find a match) (column 3, lines 51-54);

And maintaining, if the electronic signature of the updated program is determined to be authentic, the updated program (if the hash values match, indicating that flash memory upgrade program containing in main memory originated from the authorized creator and has not been modified, then the current program containing in the lash memory would enable reprogramming of the flash memory

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and return control of the processor to the flash memory upgrade program)  
(column 3, lines 55-61).

Claims 13, 29: **Mattison** discloses a method for protecting flash memory from any unauthorized reprogramming effort as in claims 12 and 28 above, and further discloses that the step of determining whether the acquired electronic signature of the update program is authentic further comprises:

Generating a message digest from the acquired update program (independently calculating a hash value for the flash memory upgrade program) (column 3, lines 49-50);

Obtaining a message digest by decrypting the acquired electronic signature of the acquired update program (the current program then verify the source and content of the flash memory upgrade program by decrypting the digital signature using the vendor public key store in the current program to obtain the original hash value) (column 3, lines 46-49);

And comparing the message digest generated from the acquired update program and the message digest obtained by decrypting the acquired electronic signature of the acquired update program (comparing the original hash value obtained from decrypting the digital signature with the independently generated hash value to find a match) (column 3, lines 51-54).

Claims 14, 30: Mattison discloses a method for protecting flash memory from any unauthorized reprogramming as in claims 12 and 28, and further discloses that if the step of acquiring electronic signature of the update program is determined to be authentic, an electronic signature of the program stored in the recording medium is updated together with the program stored in the recording medium (the flash memory upgrade would then erase the flash memory and copy the new flash memory image into the flash memory) (column 3, lines 62-64).

Claims 15, 31: Mattison discloses a method for protecting flash memory from any unauthorized reprogramming effort as claimed in claims 12 and 28 above, which further comprises a step of activating, if the acquired electronic signature of the acquired update program and an acquired electronic signature of an acquired configuration file are determined to be authentic, the updated program in accordance with the acquired configuration file (the flash memory upgrade program, still executing from main system memory, would then transfer control of the processor to the program containing in the new flash memory image, now in flash memory, which in turn would return the memory controller to normal operation and begin its normal initialization sequence as if a reset had occurred) (column 4, lines 13-20).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-9, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hind et al (US 6976163) in view of Sandler et al (US 6378069).

Claims 7, 23: Hind et al discloses an apparatus for secure firmware updates as in claims 1 and 17 above comprises:

An activating unit that determines whether the electronic signature of the update program and an electronic signature of a configuration file related to the update program are authentic and, if the electronic signature of the update program and the electronic signature of the configuration file related to the update program are determined to be authentic, activates the updated program (the update image includes a plurality of certificates in a hierarchy of certificates. Authenticity of the update image is verified by evaluating each of the plurality of certificates in the update image to determine if a valid digital signature is provide with each certificate of the update image (update program and configuration file) (column 4, lines 4-10),

Wherein said acquiring unit further acquires a configuration file and an electronic signature thereof from the external source (the computer program instruction is

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loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer or other programmable apparatus to produce a computer implementation process) (column 6, lines 44-48);

And said activating unit determines whether the electronic signature of the update program and the electronic signature of the configuration file are authentic and, if the electronic signature of the update program and the electronic signature of the configuration file are determined to be authentic, activates the update program in accordance with the configuration file (the invention also provide a certificate for use in updating a programmable memory. Such certificate includes a digital signature and at least one extension having rules to control installation of an update image. A private key of a certificate authority signs the certificate. The programmable memories of generic processing devices is selectively update based on the distributed updates and the rules specified in the at least extension of the certificate) (column 4, lines 30-60).

But does not explicitly disclose that a step of authenticating the configuration file. However Sander et al discloses an apparatus for providing software updates to devices in communication network which further provide a secure software and configuration file update (figures 2, 3, and 4). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to add a step of authenticating the configuration file in addition of the program upgrade to Hind et al's disclosure. One would have been motivated to

authenticate the configuration file in order to prevent a malicious hacker to alter the content of the message.

Claims 8, 24: Hind et al and Sandler et al disclose an apparatus for secure firmware updates as in claims 7 and 23 above, and Hind et al further discloses that said activating unit determines whether the electronic signature of the update program is authentic by comparing a message digest generated from the update program and a message digest obtained by decrypting the electronic signature of the update program (the verification of signature is provided by computing the hash over the image, decrypting the signature using the public key from the included certificate, and comparing the decrypt result with the computed hash value) (column 3, lines 33-36).

Claims 9, 25: Hind et al and Sandler et al disclose an apparatus for secure firmware updates as in claims 7 and 23 above, and Hind et al further discloses that said activating unit determines whether the electronic signature of the configuration file is authentic by comparing a message digest generated from the configuration file and a message digest obtained by decrypting the electronic signature of the configuration file (the verification of signature is provided by computing the hash over the image, decrypting the signature using the public key from the included certificate, and comparing the decrypt result with the computed hash value) (column 3, lines 33-36).

7. Claims 10-11, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hind et al (US 6976163) in view of Sandler et al (US 6378069) and Arnold (US 5956408).

Claims 10, 26: Hind et al and Sandler et al disclose an apparatus for secure firmware updates as in claims 9 and 25 above, but neither of them explicitly discloses the encryption of identification information of the device. However Arnold discloses an apparatus for secure distribution of data which further discloses that the electronic signature of the configuration file is generated by encrypting a message digest of the configuration file and identification information of the recording medium (the manufacturer computes a digital signature over the data D, and the data is encrypted using the symmetric key algorithm) (column 7 lines 62-63, column 8 line 1, and figure 3). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to add a step of generating the electronic signature by encrypting the message to Hind et al's disclosure. One would have been motivated to generate electronic signature in order to assure authenticity of the message.

Claims 11, 27: Hind et al and Sandler et al disclose an apparatus for secure firmware updates as in claims 10 and 26 above, but neither of them explicitly discloses the identification information is a serial ID. However Arnold discloses

an apparatus for secure distribution of data which further discloses that the electronic signature of the configuration file is generated by encrypting a message digest of the configuration file and identification information of the recording medium (software contained in the device is used to compared "criteria information" in the data with basic information already containing in the device such as serial number, model codes, date of manufacture) (column 8, lines 37-45). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to encrypt the serial number of the device to Hind et al's disclosure. One would have been motivated to encrypt the serial number in order to ensure secure distribution of the upgrade.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Olarig et al, (US 6009524) Method for the secure remote flashing of a Bios memory.
2. Katz et al (US 5926624) Digital information library and delivery system with logic for generating files targeted to the playback device.
3. Shaw, (US 6381741) Secure data downloading recovery and upgrading.
4. Nevis et al, (US 6581159) Secure method of updating BIOS by using a simple authenticated external module to further validate new firmware code.



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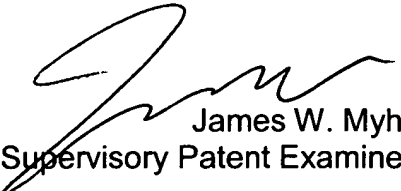
5. Walker et al, (US 6546492) System for secure controlled electronic memory updates via networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fatoumata Traore whose telephone number is (571) 270-1685. The examiner can normally be reached Monday through Thursday from 7:30 a.m. to 4:30 p.m. and every other Friday from 7:30 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim W. Myhre, can be reached on (571) 272 6722. The fax phone number for Formal or Official faxes to Technology Center 2100 is (571) 273-3800. Draft or Informal faxes, which will not be entered in the application, may be submitted directly to the examiner at (571) 274-1685.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (571) 272-2100.

FT  
April 9, 2007

  
James W. Myhre  
Supervisory Patent Examiner